

Unit 14

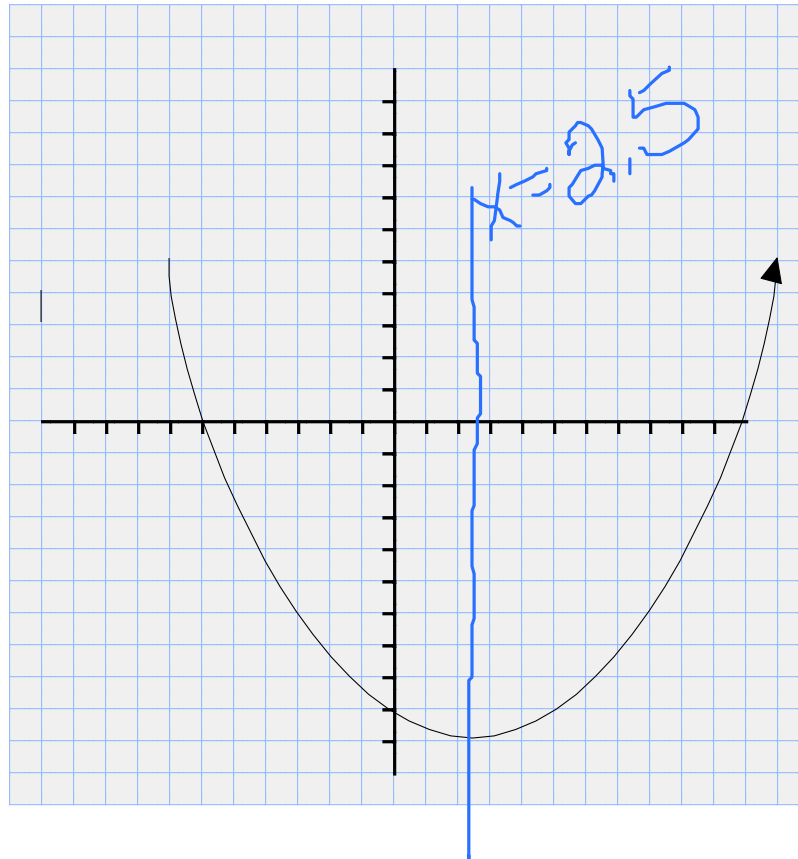
Day 3

The role of b

4.1 Role of b

$$y = ax^2 + bx + c$$

- a) opens up or down
- b) y-intercept
- c) axis of symmetry
- d) vertex minimum
or maximum value
- e) Value of the minimum or
maximum value
- f) vertex
- g) point of symmetry
- h) Zero's, x-intercepts,
roots, solutions



Ex1: $y = x^2 + 6x + 5$

$$f(x) = x^2 + 6x + 5$$

a) upward

b) $y = 0^2 + 6(0) + 5$

$$y = 5$$

* c) axis of sym $x = \frac{-b}{2a}$

$$x = \frac{-6}{2(1)} = -3$$

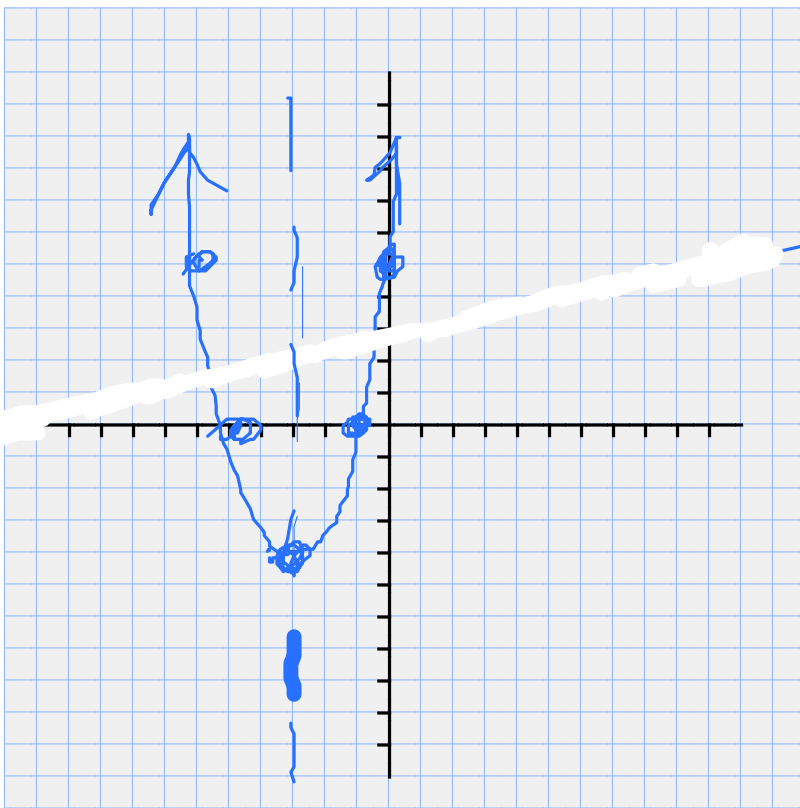
$$\boxed{x = -3}$$

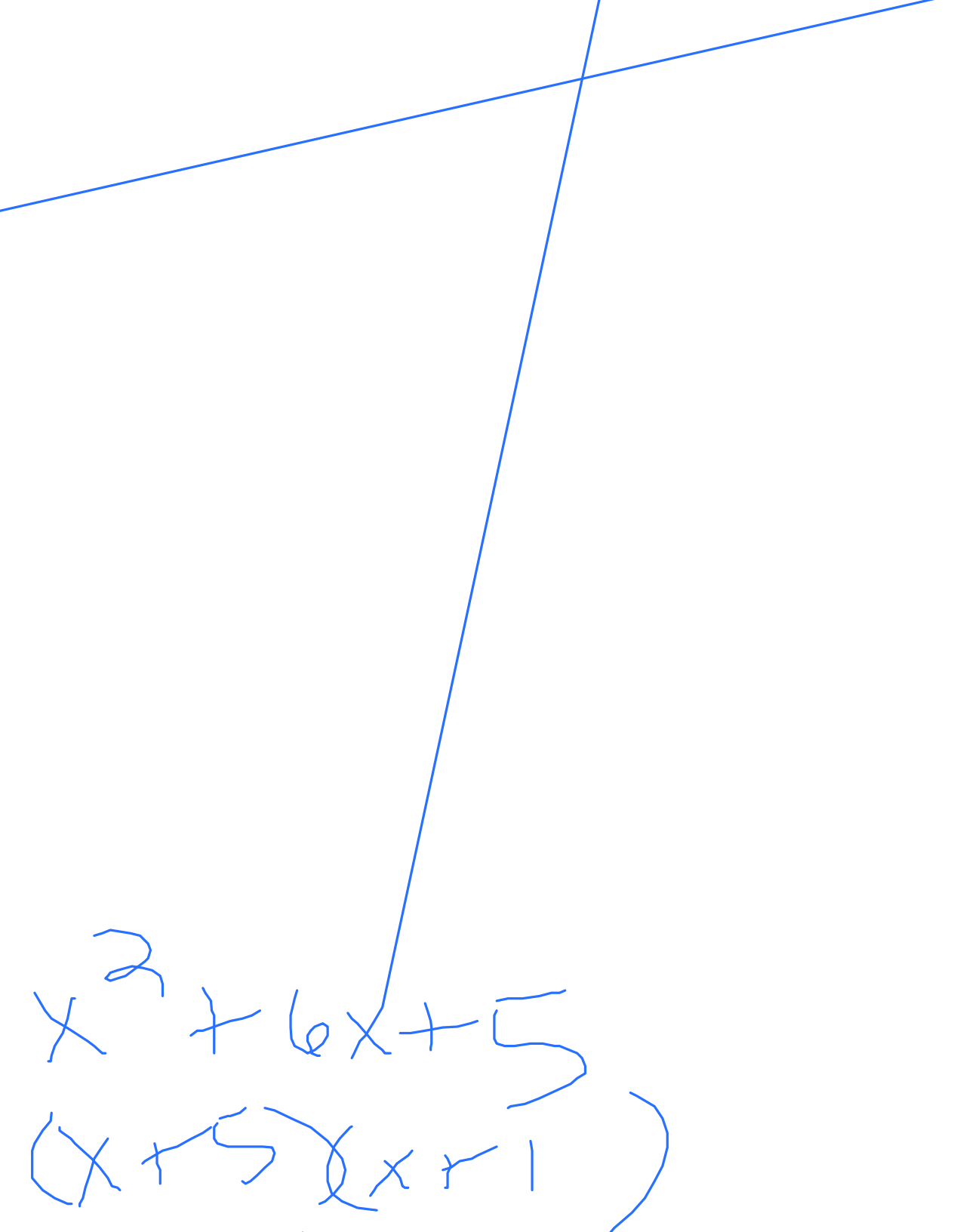
f) $(-3, 4)$

h) $0 = x^2$

d) $f\left(\frac{-b}{2a}\right) = f(-3) = (-3)^2 + 6(-3) + 5$
 $= -4$


$0 = (x$





Hand-drawn coordinate system with x and y axes. The x-axis is horizontal and the y-axis is vertical, intersecting at the origin. The x-axis is labeled 'x' and the y-axis is labeled 'y'.

$$x^2 + 6x + 5$$
$$(x+5)(x+1)$$

e)  $f(-3) = -4$

O C X
— — —

$$(x-5)(x+1)$$

Ex2: $y = -3x^2 - 2x + 5$

① Down

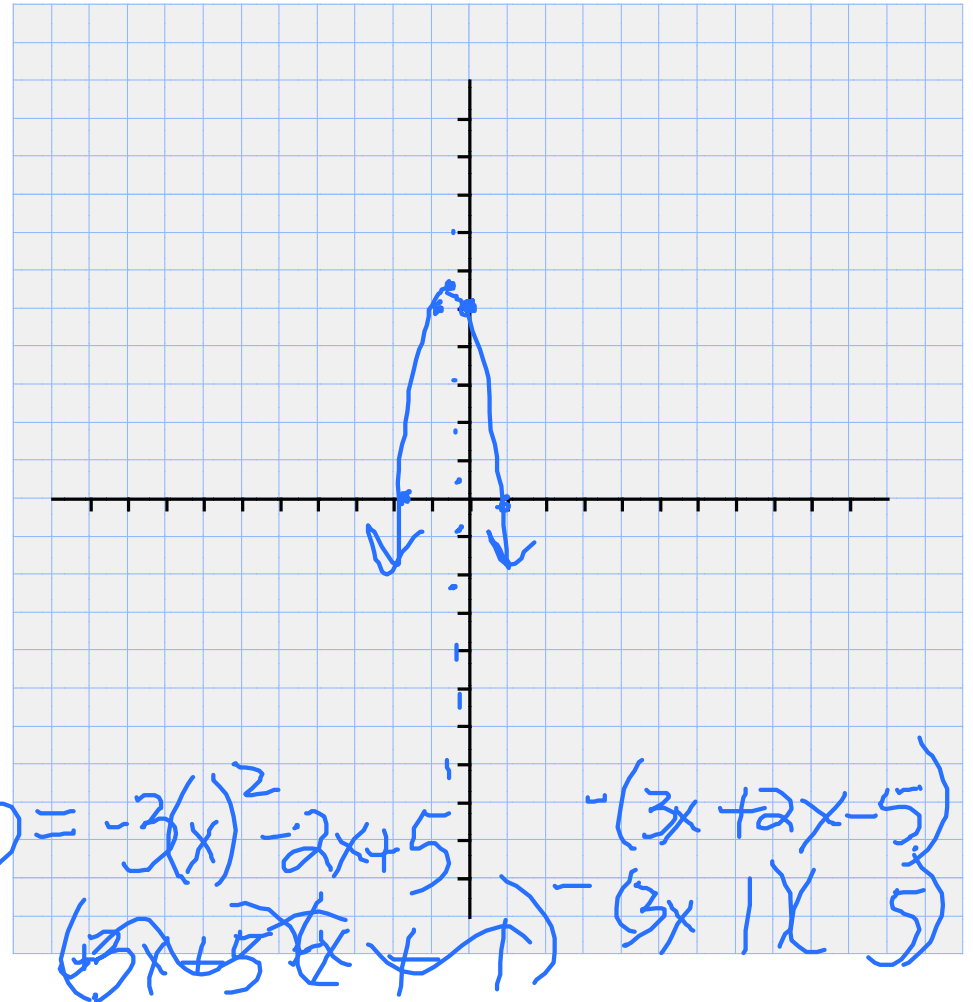
② $y = 5$ (0,5)

③ $x = \frac{-b}{2a} = \frac{2}{-6} = -\frac{1}{3}$

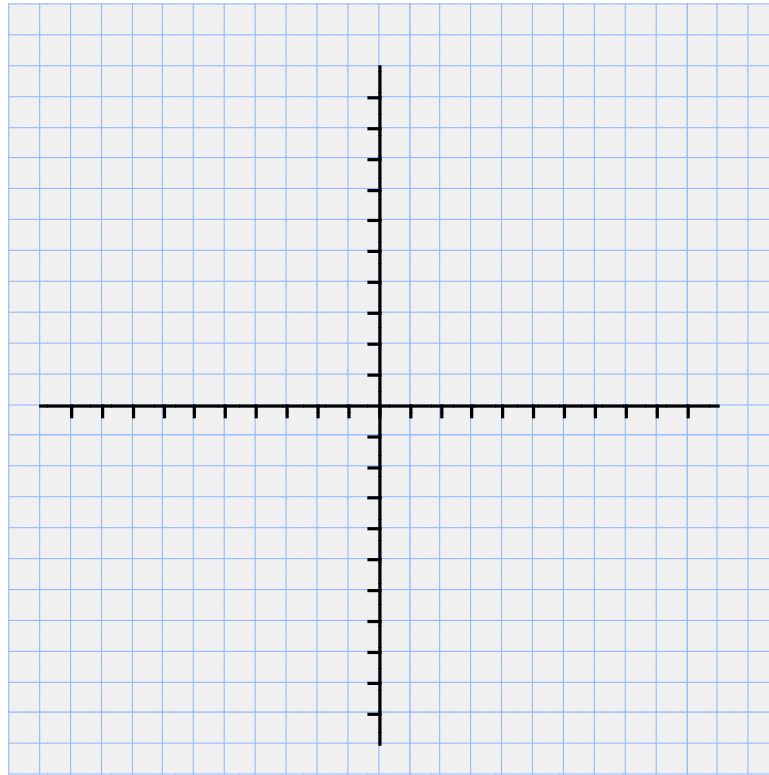
④ MAX

⑤ $f\left(-\frac{1}{3}\right) = -3\left(-\frac{1}{3}\right)^2 - 2\left(-\frac{1}{3}\right) + 5$
 $= -\frac{1}{3} + \frac{2}{3} + 5$

⑥ Vertex $\left(-\frac{1}{3}, 5\frac{1}{3}\right) = 5\frac{1}{3}$



Ex3: $y=2x^2-9x+4$



HW Wksht 1-8 all